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Electron density and temperature over Jupiter's main auroral emission

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Jupiter's ultraviolet (UV) aurora, the most powerful and intense in the solar system, is caused by energetic electrons precipitating from the magnetosphere into the atmosphere where they excite the molecular hydrogen. Electrons from ~50 eV to ~100 keV are characterized over the auroral regions by the Jovian Auroral Distributions Experiment (JADE) on Juno. Investigating the characteristics of electron distributions at these energies is critical for understanding the source population for the electrons that produce Jupiter's UV aurora and the mechanisms that accelerated them to keV and MeV energies. In this study, we present a survey of electron distributions and moments derived from JADE in Jupiter's polar magnetosphere. We quantify the electron properties (e.g. density and temperature) and explore similarities and differences in their distributions over several Juno perijove passes, focusing on regions near the main emission.